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10/572,877	03/22/2006	Shigenori Shiraishi	Q93827	3665
23373 7590 09/15/2008 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037				
EXAMINER				
GALLIS, DAVID E				
ART UNIT		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/572,877

**Applicant(s)**

SHIRAIISHI ET AL.

**Examiner**

DAVID E. GALLIS

**Art Unit**

1625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 May 2008.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,2 and 4-9 is/are rejected.  
7) ☒ Claim(s) 3, 10 and 11 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Claims 1 through 11 are pending. Claim 11 has been amended. Applicants' claim to foreign priority of application JAPAN 2003-333159 filed September 25, 2003 is acknowledged. Applicants' amendments and arguments filed May 21, 2008 have been entered and carefully considered.

#### ***Prior Rejections***

2. With regard to the prior rejection of claims 1, 2, 3 and 5 under 35 U.S.C. 102(b), Applicants have amended claim 1 and have argued persuasively that the method taught by Ester et al. does not anticipate the instant claims on the basis that the emulsion taught by Ester et al. is rapidly cleared on the addition of a second solvent rather than formed on addition of a second solvent. Therefore, the rejection of claims 1, 2, 3 and 5 as anticipated by Ester et al. is hereby withdrawn.

3. With regard to the prior rejection of claim 4 and 6 under 35 U.S.C. 103(a), Applicants' argue that the claims are not obvious over Ester et al., Nekrasov et al., and the USEPA CLP SOW on the same basis as that for withdrawal of the 102(b) rejection above. This argument has been found to be persuasive (see discussion above). Therefore, the rejection of claims 4 and 6 as obvious over Ester et al., in view of Nekrasov et al., and the USEPA CLP SOW is hereby withdrawn.

#### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Bonkhoff et al. (US 6,063,281, May 19, 2000).

3. Claim 1 is drawn to method for collecting an object material from a solution, which comprises a step of adding a second solvent to a solution composed of an object material to be collected and a first solvent, then mixing therewith to form an emulsion containing the object material in the second solvent in a state of which the emulsion is not uniformly dissolved in the second solvent, and a step of separating thus obtained emulsion from the solution. Claim 4 further limits claim 1, wherein the emulsion is formed using ultrasonic or mechanical agitation.

4. Bonkhoff et al. clearly anticipates the broad scope of claim 1 by teaching the extraction of organic compounds (object material) contained in an aqueous solution (a first solvent) by intensely mixing the aqueous solution with a water immiscible liquid (a second solvent) generating an emulsion which is subsequently separated by centrifugation (see ABSTRACT and column 2, lines 16-65). Since instant claim 1 makes no distinction between the compositions of the first and second solvents, nor the nature of the object material, instant claim 1 clearly reads on Bonkhoff et al.. Claim 4 is clearly anticipated by Bonkhoff et al. by teaching the use of a centrifugal extractor (a mechanical agitator) for intensive mixing to generate the emulsion. The examiner suggests that claim 1 be written to recite the limitations of instant claims 2 and 3 (i.e. stipulate the natures of the solvents and object material).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2 and 4 though 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonkhoff et al. (US 6,063,281, May 19, 2000) as applied to claim 1 above, and further in view of Nekrasov et al. (Chemistry and Technology of Fuels and Oils, 1980, 16(2), 99-103) and the USEPA Contract Laboratory Program Statement of work for Organics Analysis (May 1999, Section 10.1.3.1.3)(CLP SOW).

7. Claim 2 further limits claim 1 requiring that the first solvent be organic and the second solvent be water. Claim 4 further limits claim 1 to creating the emulsion using an ultrasonic or mechanical device. Claim 5 further limits claim 1 to include a step of collecting the object material from the emulsion. Claim 6 further limits the collection method of claim 5 to centrifugal separation. Claims 7 and 8 further limit the collection method of claim 5 to an extraction separation with a solvent of lower boiling point than the object material or second solvent. Claim 9 further limits the object material extracted in claim 8 to isolation by distillation.

8. Nekrasov et al. teach the production of emulsions claimed in claim 5 using ultrasonic devices (see page 100, para 3, lines 10 and 11; page 102, para 3, lines 1

through 3) and the use of mechanical agitators in extraction chemistry is a well known procedure.

9. Clearly, Bonkhoff et al. combined with the teachings of Nekrasov et al. renders obvious all the functional elements of the instant claim 4. It would be obvious to one of ordinary skill to combine the ultrasonic formation of emulsions taught by Nekrasov et al. with the method of object material collection taught by Ester et al.

10. The CLP SOW teaches the use of centrifugation claimed in claim 6 to complete the phase separation in an emulsion (page D-34, Section 10.1.3.1.3, lines 13 through 16).

11. Clearly, Bonkhoff et al. combined with the teachings of Nekrasov et al. and the CLP SOW renders obvious all the functional elements of the instant claims 4 and 6. It would be obvious to one of ordinary skill to combine the centrifugal emulsion separation taught by the CLP SOW with the method of object material collection taught by Bonkhoff et al.

12. Further, it is obvious to one of skill in the art to apply solvent reversal to the order of solvent addition, as well as applying a collection step for the object material from the emulsion. The use of extraction and distillation to accomplish the isolation of the object material are rudimentary practices in the art, and the selection of appropriate solvents to do so is obvious to the practitioners of rudimentary skill in the art.

***Claim Objections***

4. Claims 3, 10 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Gallis whose telephone number is 571-272-9068. The examiner can normally be reached on Mon-Thur 8:30-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Andres can be reached on 571-272-1600. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

David E. Gallis  
Patent Examiner

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/ Bernard Dentz/

Primary Examiner, Art Unit 1625